

SEQUENCE LISTING

THE CHILL SOURCE TO SOURCE

10> SYKEN, JOSH MUNGER, KARL

<120> METHODS AND REAGENTS TO REGULATE APOPTOSIS

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Pro Val Gly Lys Arg Glu Ile Phe Ile Thr Phe Arg Val Gln Lys Ser 325 330 335

Pro Val Phe Arg Arg Asp Gly Ala Asp Ile His Ser Asp Leu Phe Ile 340 345 350

Ser Ile Ala Gln Ala Leu Leu Gly Gly Thr Ala Arg Ala Gln Gly Leu 355 360 365

Tyr Glu Thr Ile Asn Val Thr Ile Pro Pro Gly Thr Gln Thr Asp Gln 370 380

Lys Ile Arg Met Gly Gly Lys Gly Ile Pro Arg Ile Asn Ser Tyr Gly 385 390 395 400

Tyr Gly Asp His Tyr Ile His Ile Lys Ile Arg Val Pro Lys Arg Leu 405 410 415

Thr Ser Arg Gln Gln Ser Leu Ile Leu Ser Tyr Ala Glu Asp Glu Thr 420 425 430

Asp Val Glu Gly Thr Val Asn Gly Val Thr Leu Thr Ser Ser Gly Lys 435 440 445

Arg Ser Thr Gly Asn 450

<210> 10

<211> 414

<212> PRT

<213> Homo sapiens

<400> 10

Val Ser Leu Thr Gly Thr Lys His Asn Pro Phe Ile Cys Thr Ala Ser 1 5 10 15

- Phe His Thr Ser Ala Pro Leu Ala Lys Glu Asp Tyr Tyr Gln Ile Leu 25 Sly Val Pro Arg Asn Ala Ser Gln Lys Glu Ile Lys Lys Ala Tyr Tyr 35 40 45
- Gln Leu Ala Lys Lys Tyr His Pro Asp Thr Asn Lys Asp Asp Pro Lys 50 55 60
- Ala Lys Glu Lys Phe Ser Gln Leu Ala Glu Ala Tyr Glu Val Leu Ser 65 70 75 80
- Asp Glu Val Lys Arg Lys Gln Tyr Asp Ala Tyr Gly Ser Ala Gly Phe 85 90 95
- Asp Pro Gly Ala Ser Gly Ser Gln His Ser Tyr Trp Lys Gly Gly Pro 100 105 110
- Thr Val Asp Pro Glu Glu Leu Phe Arg Lys Ile Phe Gly Glu Phe Ser 115 120 125
- Ser Ser Phe Gly Asp Phe Gln Thr Val Phe Asp Gln Pro Gln Glu 130 135 140
- Tyr Phe Met Glu Leu Thr Phe Asn Gln Ala Lys Gly Val Asn Lys 145 150 155 160
- Glu Phe Thr Val Asn Ile Met Asp Thr Cys Glu Arg Cys Asn Gly Lys 165 170 175
- Gly Asn Glu Pro Gly Thr Lys Val Gln His Cys His Tyr Cys Gly Gly 180 185 190
- Ser Gly Met Glu Thr Ile Asn Thr Gly Pro Phe Val Met Arg Ser Thr 195 200 205
- Cys Arg Arg Cys Gly Gly Arg Gly Ser Ile Ile Ile Ser Pro Cys Val 210 215 220
- Val Cys Arg Gly Ala Gly Gln Ala Lys Gln Lys Lys Arg Val Met Ile 225 230 235 240
- Pro Val Pro Ala Gly Val Glu Asp Gly Gln Thr Val Arg Met Pro Val 245 250 255
- Gly Lys Arg Glu Ile Phe Ile Thr Phe Arg Val Gln Lys Ser Pro Val
 260 265 270
- Phe Arg Arg Asp Gly Ala Asp Ile His Ser Asp Leu Phe Ile Ser Ile 275 280 285
- Ala Gln Ala Leu Leu Gly Gly Thr Ala Arg Ala Gln Gly Leu Tyr Glu 290 295 300
- Thr Ile Asn Val Thr Ile Pro Pro Gly Thr Gln Thr Asp Gln Lys Ile
 305 310 315 320
- Arg Met Gly Gly Lys Gly Ile Pro Arg Ile Asn Ser Tyr Gly Tyr Gly 325 330 335

Asp His Tyr Ile His Ile Lys Ile Arg Val Pro Lys Arg Leu Thr Ser 340 345 350

Arg Gln Gln Ser Leu Ile Leu Ser Tyr Ala Glu Asp Glu Thr Asp Val 355 360 365

Glu Gly Thr Val Asn Gly Val Thr Leu Thr Ser Ser Gly Gly Ser Thr 370 380

Met Asp Ser Ser Ala Gly Ser Lys Ala Arg Arg Glu Ala Gly Glu Asp 385 390 395 400

Glu Glu Gly Phe Leu Ser Lys Leu Lys Lys Met Phe Thr Ser 405 410

<210> 11

<211> 387

<212> PRT

<213> Homo sapiens

<400> 11

Val Ser Leu Thr Gly Thr Lys His Asn Pro Phe Ile Cys Thr Ala Ser

1 5 10 15

Phe His Thr Ser Ala Pro Leu Ala Lys Glu Asp Tyr Tyr Gln Ile Leu 20 25 30

Gly Val Pro Arg Asn Ala Ser Gln Lys Glu Ile Lys Lys Ala Tyr Tyr 35 40 45

Gln Leu Ala Lys Lys Tyr His Pro Asp Thr Asn Lys Asp Asp Pro Lys
50 60

Ala Lys Glu Lys Phe Ser Gln Leu Ala Glu Ala Tyr Glu Val Leu Ser 65 70 75 80

Asp Glu Val Lys Arg Lys Gln Tyr Asp Ala Tyr Gly Ser Ala Gly Phe 85 90 95

Asp Pro Gly Ala Ser Gly Ser Gln His Ser Tyr Trp Lys Gly Gly Pro
100 105 110

Thr Val Asp Pro Glu Glu Leu Phe Arg Lys Ile Phe Gly Glu Phe Ser 115 120 125

Ser Ser Ser Phe Gly Asp Phe Gln Thr Val Phe Asp Gln Pro Gln Glu 130 135 140

Tyr Phe Met Glu Leu Thr Phe Asn Gln Ala Ala Lys Gly Val Asn Lys 145 150 155 160

Glu Phe Thr Val Asn Ile Met Asp Thr Cys Glu Arg Cys Asn Gly Lys 165 170 175

Gly Asn Glu Pro Gly Thr Lys Val Gln His Cys His Tyr Cys Gly Gly
180 185 190

Ser Gly Met Glu Thr Ile Asn Thr Gly Pro Phe Val Met Arg Ser Thr 195 200 205 Cys Arg Arg Cys Gly Gly Arg Gly Ser Ile Ile Ile Ser Pro Cys Val 210 215 220

Val Cys Arg Gly Ala Gly Gln Ala Lys Gln Lys Lys Arg Val Met Ile 225 230 235 240

Pro Val Pro Ala Gly Val Glu Asp Gly Gln Thr Val Arg Met Pro Val 245 250 255

Gly Lys Arg Glu Ile Phe Ile Thr Phe Arg Val Gln Lys Ser Pro Val 260 265 270

Phe Arg Arg Asp Gly Ala Asp Ile His Ser Asp Leu Phe Ile Ser Ile 275 280 285

Ala Gln Ala Leu Leu Gly Gly Thr Ala Arg Ala Gln Gly Leu Tyr Glu 290 295 300

Thr Ile Asn Val Thr Ile Pro Pro Gly Thr Gln Thr Asp Gln Lys Ile 305 310 315 320

Arg Met Gly Gly Lys Gly Ile Pro Arg Ile Asn Ser Tyr Gly Tyr Gly 325 330 335

Asp His Tyr Ile His Ile Lys Ile Arg Val Pro Lys Arg Leu Thr Ser 340 345 350

Arg Gln Gln Ser Leu Ile Leu Ser Tyr Ala Glu Asp Glu Thr Asp Val 355 360 365

Glu Gly Thr Val Asn Gly Val Thr Leu Thr Ser Ser Gly Lys Arg Ser 370 380

Thr Gly Asn 385

<210> 12

<211> 480

<212> PRT

<213> Homo sapiens

<400> 12

Met Ala Ala Arg Cys Ser Thr Arg Trp Leu Leu Val Val Val Gly Thr
1 5 10 15

Pro Arg Leu Pro Ala Ile Ser Gly Arg Gly Ala Arg Pro Pro Arg Glu 20 25 30

Gly Val Val Gly Ala Trp Leu Ser Arg Lys Leu Ser Val Pro Ala Phe 35 40 45

Ala Ser Ser Leu Thr Ser Cys Gly Pro Arg Ala Leu Leu Thr Leu Arg
50 60

Pro Gly Val Ser Leu Thr Gly Thr Lys His Asn Pro Phe Ile Cys Thr 65 70 75 80

Ala Ser Phe His Thr Ser Ala Pro Leu Ala Lys Glu Asp Tyr Tyr Gln
85 90 95

- Ile Leu Gly Val Pro Arg Asn Ala Ser Gln Lys Glu Ile Lys Lys Ala 100 105 110
- Tyr Tyr Gln Leu Ala Lys Lys Tyr His Pro Asp Thr Asn Lys Asp Asp 115 120 125
- Pro Lys Ala Lys Glu Lys Phe Ser Gln Leu Ala Glu Ala Tyr Glu Val 130 135 140
- Leu Ser Asp Glu Val Lys Arg Lys Gln Tyr Asp Ala Tyr Gly Ser Ala 145 150 155 160
- Gly Phe Asp Pro Gly Ala Ser Gly Ser Gln His Ser Tyr Trp Lys Gly
 165 170 175
- Gly Pro Thr Val Asp Pro Glu Glu Leu Phe Arg Lys Ile Phe Gly Glu 180 . 185 190
- Phe Ser Ser Ser Phe Gly Asp Phe Gln Thr Val Phe Asp Gln Pro 195 200 205
- Gln Glu Tyr Phe Met Glu Leu Thr Phe Asn Gln Ala Ala Lys Gly Val 210 215 220
- Asn Lys Glu Phe Thr Val Asn Ile Met Asp Thr Cys Glu Arg Cys Asn 225 230 235 240
- Gly Lys Gly Asn Glu Pro Gly Thr Lys Val Gln His Cys His Tyr Cys 245 250 255
- Gly Gly Ser Gly Met Glu Thr Ile Asn Thr Gly Pro Phe Val Met Arg 260 265 270
- Ser Thr Cys Arg Arg Cys Gly Gly Arg Gly Ser Ile Ile Ile Ser Pro 275 280 285
- Cys Val Val Cys Arg Gly Ala Gly Gln Ala Lys Gln Lys Lys Arg Val 290 295 300
- Met Ile Pro Val Pro Ala Gly Val Glu Asp Gly Gln Thr Val Arg Met 305 310 315 320
- Pro Val Gly Lys Arg Glu Ile Phe Ile Thr Phe Arg Val Gln Lys Ser 325 330 335
- Pro Val Phe Arg Arg Asp Gly Ala Asp Ile His Ser Asp Leu Phe Ile 340 345 350
- Ser Ile Ala Gln Ala Leu Leu Gly Gly Thr Ala Arg Ala Gln Gly Leu 355 360 365
- Tyr Glu Thr Ile Asn Val Thr Ile Pro Pro Gly Thr Gln Thr Asp Gln 370 375 380
- Lys Ile Arg Met Gly Gly Lys Gly Ile Pro Arg Ile Asn Ser Tyr Gly 385 390 395 400
- Tyr Gly Asp His Tyr Ile His Ile Lys Ile Arg Val Pro Lys Arg Leu
 405 410 415
- Thr Ser Arg Gln Gln Ser Leu Ile Leu Ser Tyr Ala Glu Asp Glu Thr

420 425 430 Asp Val Glu Gly Thr Val Asn Gly Val Thr Leu Thr Ser Ser Gly Gly 435 440 Ser Thr Met Asp Ser Ser Ala Gly Ser Lys Ala Arg Arg Glu Ala Gly 450 455 Glu Asp Glu Glu Gly Phe Leu Ser Lys Leu Lys Lys Met Phe Thr Ser 465 470 <210> 13 <211> 33 <212> PRT <213> Homo sapiens <400> 13 Gly Ser Thr Met Asp Ser Ser Ala Gly Ser Lys Ala Arg Arg Glu Ala Gly Glu Asp Glu Glu Gly Phe Leu Ser Lys Leu Lys Lys Met Phe Thr 25 Ser <210> 14 <211> 6 <212> PRT <213> Homo sapiens <400> 14 Lys Arg Ser Thr Gly Asn <210> 15 <211> 26 <212> PRT <213> Artificial Sequence <223> Description of Artificial Sequence: Synthetic peptide <400> 15 Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Pro Pro Gln Gly Ser 20 25 <210> 16 <211> 12 <212> PRT <213> Unknown Organism <220>

<223> Description of Unknown Organism: EGF derived

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peptide
<400> 16
Cys Met His Ile Glu Ser Leu Asp Ser Tyr Thr Cys
        5
<210> 17
<211> 12
<212> PRT
<213> Unknown Organism
<220>
<223> Description of Unknown Organism: EGF derived
      peptide
<400> 17
Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys
<210> 18
<211> 29
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic
      internalizing peptide
<400> 18
Glu Ala Ala Leu Ala Glu Ala Leu Ala Glu Ala Leu Ala Glu Ala Leu
Ala Glu Ala Leu Ala Glu Ala Leu Glu Ala Leu Ala Ala
             20
<210> 19
<211> 8
<212> PRT
<213> Artificial Sequence
<223> Description of Artificial Sequence: Illustrative
      peptide
<400> 19
Gly Asn Ala Ala Ala Arg Arg
                 5
 1
<210> 20
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Primer
<400> 20
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20
cgagacagat gtggagggga
<210> 21
<211> 18
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Primer
<400> 21
gaataattta aacacact
                                                                    18
<210> 22
<211> 36
<212> PRT
<213> Homo sapiens
<400> 22
Ser Ser Gly Gly Ser Thr Met Asp Ser Ser Ala Gly Ser Lys Ala Arg
Arg Glu Ala Gly Glu Asp Glu Glu Gly Phe Leu Ser Lys Leu Lys Lys
Met Phe Thr Ser
        35
<210> 23
<211> 9
<212> PRT
<213> Homo sapiens
<400> 23
Ser Ser Gly Lys Arg Ser Thr Gly Asn
<210> 24
<211> 33
<212> PRT
<213> Homo sapiens
Gly Ser Thr Met Asp Ser Ser Ala Gly Ser Lys Ala Arg Arg Glu Ala
Gly Glu Asp Glu Glu Gly Phe Leu Ser Lys Leu Lys Lys Met Phe Thr
                                  25
                                                      30
Ser
<210> 25
<211> 33
<212> PRT
<213> Mus sp.
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<400> 25
Gly Arg Thr Met Asp Ser Ser Ala Glu Ser Lys Asp Arg Arg Glu Ala
Gly Glu Asp Asn Glu Gly Phe Leu Ser Lys Leu Lys Lys Ile Phe Thr
                                  25
Ser
<210> 26
<211> 6
<212> PRT
<213> Homo sapiens
<400> 26
Lys Arg Ser Thr Gly Asn
<210> 27
<211> 6
<212> PRT
<213> Mus sp.
<400> 27
Lys Arg Ser Thr Gly Asn
<210> 28
<211> 479
<212> PRT
<213> Mus sp.
<220>
<221> MOD_RES
<222> (206)..(224)
<223> Unknown amino acid
<400> 28
Met Ala Ala Trp Cys Ser Pro Arg Trp Leu Arg Val Ala Val Gly Thr
Pro Arg Leu Pro Ala Ala Gly Arg Gly Val Gln Gln Pro Gln Gly
             20
Gly Val Val Ala Thr Ser Leu Cys Arg Lys Leu Cys Val Ser Ala Phe
Gly Leu Ser Met Gly Ala His Gly Pro Arg Ala Leu Leu Thr Leu Arg
     50
Pro Gly Val Arg Leu Thr Gly Thr Lys Ser Phe Pro Phe Val Cys Thr
Thr Ser Phe His Thr Ser Ala Ser Leu Ala Lys Asp Asp Tyr Tyr Gln
                                     90
Ile Leu Gly Val Pro Arg Asn Ala Ser Gln Lys Asp Ile Lys Lys Ala
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105

Tyr Tyr Gln Leu Ala Lys Lys Tyr His Pro Asp Thr Asn Lys Asp Asp 120 Pro Lys Ala Lys Glu Lys Phe Ser Gln Leu Ala Glu Ala Tyr Glu Val 135 Leu Ser Asp Glu Val Lys Arg Lys Gln Tyr Asp Ala Tyr Gly Ser Ala Gly Phe Asp Pro Gly Thr Ser Ser Ser Gly Gln Gly Tyr Trp Arg Gly Gly Pro Ser Val Asp Pro Glu Glu Leu Phe Arg Lys Ile Phe Gly Glu 185 Phe Ser Ser Pro Phe Gly Asp Phe Gln Asn Val Val Xaa Xaa Xaa 200 215 Lys Glu Phe Thr Val Asn Ile Met Asp Thr Cys Glu Arg Cys Asp Gly 230 Lys Gly Asn Glu Pro Gly Thr Lys Val Gln His Cys His Tyr Cys Gly 250 Gly Ser Gly Met Glu Thr Ile Asn Thr Gly Pro Phe Val Met Arg Ser Thr Cys Arg Arg Cys Gly Gly Arg Gly Ser Ile Ile Thr Asn Pro Cys 280 Val Val Cys Arg Gly Ala Gly Gln Ala Lys Gln Lys Lys Arg Val Thr 290 Ile Pro Val Pro Ala Gly Val Glu Asp Gly Gln Thr Val Arg Met Pro 310 Val Gly Lys Arg Glu Ile Phe Val Thr Phe Arg Val Gln Lys Ser Pro Val Phe Arg Arg Thr Cys Ala Asp Ile His Ser Asp Leu Phe Ile Ser Ile Ala Gln Ala Ile Leu Gly Gly Thr Ala Lys Ala Gln Gly Leu Tyr Glu Thr Ile Asn Val Thr Ile Pro Ala Gly Ile Gln Thr Asp Gln Lys Ile Arg Leu Thr Gly Lys Gly Ile Pro Arg Ile Asn Ser Tyr Gly Tyr 395 Gly Asp His Tyr Ile His Ile Lys Ile Arg Val Pro Lys Arg Leu Ser Ser Arg Gln Gln Asn Leu Ile Leu Ser Tyr Ala Glu Asp Glu Thr Asp

Val Glu Gly Thr Val Asn Gly Val Thr His Thr Ser Thr Gly Gly Arg
435 440 445

Thr Met Asp Ser Ser Ala Glu Ser Lys Asp Arg Arg Glu Ala Gly Glu 450 455 460

Asp Asn Glu Gly Phe Leu Ser Lys Leu Lys Lys Ile Phe Thr Ser 465 470 475

<210> 29

<211> 452

<212> PRT

<213> Mus sp.

<220>

<221> MOD RES

<222> (206)..(224)

<223> Unknown amino acid

<400> 29

Met Ala Ala Trp Cys Ser Pro Arg Trp Leu Arg Val Ala Val Gly Thr 1 5 10 15

Pro Arg Leu Pro Ala Ala Ala Gly Arg Gly Val Gln Gln Pro Gln Gly
20 25 30

Gly Val Val Ala Thr Ser Leu Cys Arg Lys Leu Cys Val Ser Ala Phe 35 40 45

Gly Leu Ser Met Gly Ala His Gly Pro Arg Ala Leu Leu Thr Leu Arg 50 55 60

Pro Gly Val Arg Leu Thr Gly Thr Lys Ser Phe Pro Phe Val Cys Thr 65 70 75 80

Thr Ser Phe His Thr Ser Ala Ser Leu Ala Lys Asp Asp Tyr Tyr Gln
85 90 95

Ile Leu Gly Val Pro Arg Asn Ala Ser Gln Lys Asp Ile Lys Lys Ala 100 105 110

Tyr Tyr Gln Leu Ala Lys Lys Tyr His Pro Asp Thr Asn Lys Asp Asp 115 120 125

Pro Lys Ala Lys Glu Lys Phe Ser Gln Leu Ala Glu Ala Tyr Glu Val 130 140

Leu Ser Asp Glu Val Lys Arg Lys Gln Tyr Asp Ala Tyr Gly Ser Ala 145 150 155 160

Gly Phe Asp Pro Gly Thr Ser Ser Gly Gln Gly Tyr Trp Arg Gly
165 170 175

Gly Pro Ser Val Asp Pro Glu Glu Leu Phe Arg Lys Ile Phe Gly Glu 180 185 190

Phe Ser Ser Pro Phe Gly Asp Phe Gln Asn Val Val Xaa Xaa Xaa 195 200 205

210 215 220 Lys Glu Phe Thr Val Asn Ile Met Asp Thr Cys Glu Arg Cys Asp Gly 230 Lys Gly Asn Glu Pro Gly Thr Lys Val Gln His Cys His Tyr Cys Gly 250 Gly Ser Gly Met Glu Thr Ile Asn Thr Gly Pro Phe Val Met Arg Ser Thr Cys Arg Arg Cys Gly Gly Arg Gly Ser Ile Ile Thr Asn Pro Cys Val Val Cys Arg Gly Ala Gly Gln Ala Lys Gln Lys Lys Arg Val Thr Ile Pro Val Pro Ala Gly Val Glu Asp Gly Gln Thr Val Arg Met Pro 315 Val Gly Lys Arg Glu Ile Phe Val Thr Phe Arg Val Gln Lys Ser Pro 330 Val Phe Arg Arg Thr Cys Ala Asp Ile His Ser Asp Leu Phe Ile Ser Ile Ala Gln Ala Ile Leu Gly Gly Thr Ala Lys Ala Gln Gly Leu Tyr Glu Thr Ile Asn Val Thr Ile Pro Ala Gly Ile Gln Thr Asp Gln Lys Ile Arg Leu Thr Gly Lys Gly Ile Pro Arg Ile Asn Ser Tyr Gly Tyr Gly Asp His Tyr Ile His Ile Lys Ile Arg Val Pro Lys Arg Leu Ser Ser Arg Gln Gln Asn Leu Ile Leu Ser Tyr Ala Glu Asp Glu Thr Asp 425 Val Glu Gly Thr Val Asn Gly Val Thr His Thr Ser Thr Gly Lys Arg 440 Ser Thr Gly Asn 450 <210> 30 <211> 453 <212> PRT <213> Homo sapiens <400> 30 Met Ala Ala Arg Cys Ser Thr Arg Trp Leu Leu Val Val Val Gly Thr 5

Pro Arg Leu Pro Ala Ile Ser Gly Arg Gly Ala Arg Pro Pro Arg Glu
20 25 30

- Gly Val Val Gly Ala Trp Leu Ser Arg Lys Leu Ser Val Pro Ala Phe 35 40 45
- Ala Ser Ser Leu Thr Ser Cys Gly Pro Arg Ala Leu Leu Thr Leu Arg 50 55 60
- Pro Gly Val Ser Leu Thr Gly Thr Lys His Asn Pro Phe Ile Cys Thr 65 70 75 80
- Ala Ser Phe His Thr Ser Ala Pro Leu Ala Lys Glu Asp Tyr Tyr Gln 85 90 95
- Ile Leu Gly Val Pro Arg Asn Ala Ser Gln Lys Glu Ile Lys Lys Ala 100 105 110
- Tyr Tyr Gln Leu Ala Lys Lys Tyr Gln Pro Asp Thr Asn Lys Asp Asp 115 120 125
- Pro Lys Ala Lys Glu Lys Phe Ser Gln Leu Ala Glu Ala Tyr Glu Val 130 140
- Leu Ser Asp Glu Val Lys Arg Lys Gln Tyr Asp Ala Tyr Gly Ser Ala 145 150 155 160
- Gly Phe Asp Pro Gly Ala Ser Gly Ser Gln His Ser Tyr Trp Lys Gly 165 170 175
- Gly Pro Thr Val Asp Pro Glu Glu Leu Phe Arg Lys Ile Phe Gly Glu 180 185 190
- Phe Ser Ser Ser Ser Phe Gly Asp Phe Gln Thr Val Phe Asp Gln Pro 195 200 205
- Gln Glu Tyr Phe Met Glu Leu Thr Phe Asn Gln Ala Ala Lys Gly Val 210 215 220
- Asn Lys Glu Phe Thr Val Asn Ile Met Asp Thr Cys Glu Arg Cys Asn 225 230 235 240
- Gly Lys Gly Asn Glu Pro Gly Thr Lys Val Gln His Cys His Tyr Cys 245 250 255
- Gly Gly Ser Gly Met Glu Thr Ile Asn Thr Gly Pro Phe Val Met Arg 260 265 270

Ser Thr Cys Arg Arg Cys Gly Gly Arg Gly Ser Ile Ile Ile Ser Pro 275 280 285

Cys Val Val Cys Arg Gly Ala Gly Gln Ala Lys Gln Lys Lys Arg Val 290 295 300

Met Ile Pro Val Pro Ala Gly Val Glu Asp Gly Gln Thr Val Arg Met 305 310 315 320

Pro Val Gly Lys Arg Glu Ile Phe Ile Thr Phe Arg Val Gln Lys Ser 325 330 335

Pro Val Phe Arg Arg Asp Gly Ala Asp Ile His Ser Asp Leu Phe Ile 340 345 350

Ser Ile Ala Gln Ala Leu Leu Gly Gly Thr Ala Arg Ala Gln Gly Leu 355 360 365

Tyr Glu Thr Ile Asn Val Thr Ile Pro Pro Gly Thr Gln Thr Asp Gln 370 380

Lys Ile Arg Met Gly Gly Lys Gly Ile Pro Arg Ile Asn Ser Tyr Gly 385 390 395 400

Tyr Gly Asp His Tyr Ile His Ile Lys Ile Arg Val Pro Lys Arg Leu 405 410 415

Thr Ser Arg Gln Gln Ser Leu Ile Leu Ser Tyr Ala Glu Asp Glu Thr 420 425 430

Asp Val Glu Gly Thr Val Asn Gly Val Thr Leu Thr Ser Ser Gly Lys 435 440 445

Arg Ser Thr Gly Asn 450